UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

May 1964

Part II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

CONTENTS

	Page
Temperate Tuna Forecast 1964	1
Sea Surface Temperature Charts, Eastern Pacific Ocean, May 1964	5

Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 6317, Pt. Loma Station
San Diego 6, California

* Part I - "Fishery Products Production and Market Data" is issued by the Bureau of Commercial Fisheries, Market News Service, Post Office Building, San Pedro, California

TEMPERATE TUNA FORECAST 1964

In May 1961, the staff of the Tuna Forecasting Program of the Bureau of Commercial Fisheries Biological Laboratory, San Diego, issued its first forecast for the temperate tuna fishery of the eastern Pacific Ocean. This forecast was limited to an estimate of the amount of albacore that would be taken south of the International Border between the United States and Mexico. The following year a chart was included in the forecast to show the region off southern California which was expected to produce the best albacore fishing in July. Included also for the first time was a statement as to the amount of bluefin catch expected north of the International Border.

During the past year additional research has indicated a relationship between oceanic conditions and the onset of the albacore fishery. Normally, in the temperate eastern Pacific, the ocean changes from winter cooling to spring heating in early March. In years when the change occurs early, the albacore fishery usually commences early; conversely, when heating is late, the onset of the fishery is retarded. This year initial heating was later than usual, and consequently, our forecast is that June landings of albacore in California will be below average. Landings in June for the period 1945-1963 have ranged from over one million pounds in 1950 to zero in 1963. Average June landings for the 1945-1963 period are 175,282 pounds (Table 1). In addition, because ocean waters off Oregon and Washington are colder than average now, and the change from cooling to heating was late this year, we estimate July landings in these states will be below the average of one million pounds (Table 1).

The area that is expected to produce the best albacore fishing in July off southern California is shown in Figure 1. This area is determined from April temperature and salinity data taken at a depth of ten meters. These data are combined to produce a July "catch index". The catch index this year is similar to that of the last two years but is considerably south of that determined for 1958 and 1959 and is north of that for the years 1951-1956. Because of the temperature and salinity distribution this year, as a result of unusually intense upwelling along the southern California coast, we believe the index may not represent sufficiently the southern limit of the fishery. Good fishing in July could be farther south than that shown.

Our estimate of the 1964 albacore catch is restricted, as in previous years, to the amount that will be taken south of the International Border between the United States and Mexico. The

Table 1.--Early-season albacore landings for California (June) and Oregon-Washington (July).

[Source: California Department of Fish and Game Commercial Fish Catch Bulletins and Pacific Fisherman Yearbooks for 1950, 1959, 1960, 1961.]

Year	Landings in pounds	
	California (June)	Oregon-Washington (July)
1945	6,175	1/
1946	424,082	1/
1947	415,849	2,303,505
1948	85	4,505,801
1949	82,747	1,401,712
1950	1,143,139	3,819,132
1951	157,917	95,145
1952	6,299	14,509
1953	97,258	0
1954	2,866	0
1955	16,002	0
1956	210,527	0
1957	511,799	94,468
1958	14,228	415,892
1959	50,976	1,881,881
1960	126,383	23,007
1961	35,603	1/
1962	28,414	1/
1963	3/ 0	1/
Average	175,282	2/ 1,039,646

1/ Data not available.
2/ Computed on basis of 1947-1960 landings.
3/ Preliminary.

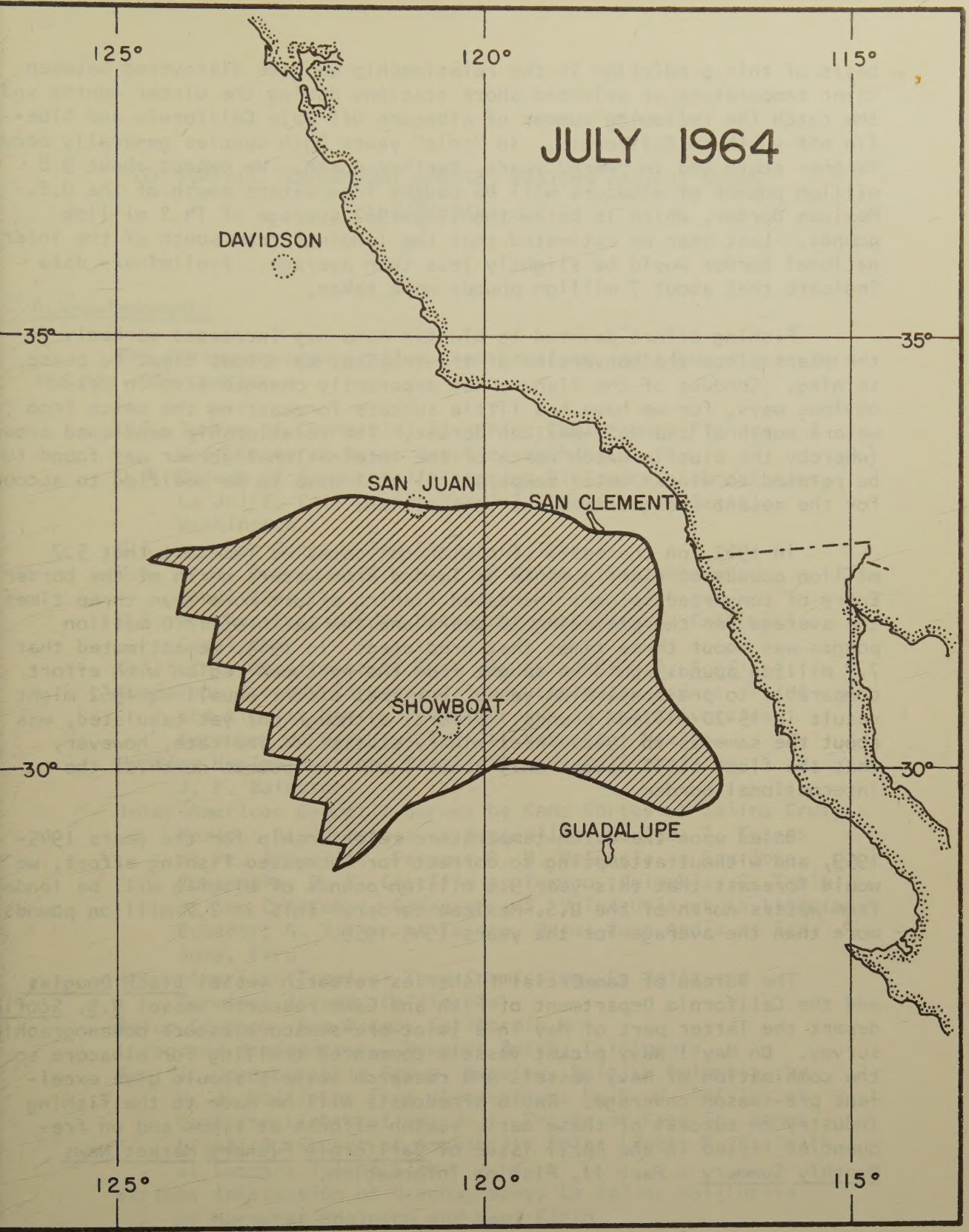


Figure 1.--Cross-hatched region delineates the area expected to produce about two-thirds of the total July 1964 albacore catch.

basis of this prediction is the relationship we have discovered between water temperature at selected shore stations during the winter months and the catch the following summer of albacore off Baja California and bluefin off southern California. In "cold" years both species generally occur farther south and in "warm" years, farther north. We expect about 9.8 million pounds of albacore will be caught from waters south of the U.S.-Mexican Border, which is below the 1945-1962 average of 14.2 million pounds. Last year we estimated that the landings from south of the International Border would be slightly less than average. Preliminary data indicate that about 7 million pounds were taken.

Fishing effort devoted to bluefin tuna has increased markedly in the years since the conversion of the tropical bait boat fleet to purse seining. Conduct of the fishery has apparently changed also in less obvious ways, for we have had little success forecasting the catch from waters north of the U.S.-Mexican Border. The relationship mentioned above (whereby the bluefin catch north of the International Border was found to be related to winter water temperature) will have to be modified to account for the recent changes in fleet composition.

In 1962, on the basis of historical data, we forecast that 5.7 million pounds of bluefin would be landed from waters north of the border. Entry of converted seiners increased fishing effort more than three times the average for the preceding 10 years and the catch of 17.0 million pounds was about three times that predicted. In 1963, we estimated that 7.7 million pounds would be caught from the northern region with effort comparable to pre-conversion years, but that effort equalling 1962 might result in 15-20 million pounds. Effort, although not yet tabulated, was about the same as in 1962. Preliminary statistics indicate, however, that the fleet still caught only about 7 million pounds north of the International Border.

Based upon the catch-temperature relationship for the years 1945-1959, and without attempting to correct for increased fishing effort, we would forecast that this year 9.6 million pounds of bluefin will be landed from waters north of the U.S.-Mexican Border. This is 2.7 million pounds more than the average for the years 1945-1959.

The Bureau of Commercial Fisheries research vessel Black Douglas and the California Department of Fish and Game research vessel N.B. Scofield depart the latter part of May in a joint pre-season albacore oceanographic survey. On May 1 Navy picket vessels commenced trolling for albacore so the combination of Navy vessels and research vessels should give excellent pre-season coverage. Radio broadcasts will be made to the fishing industry on success of these early season efforts at times and on frequencies listed in the April issue of California Fishery Market News Monthly Summary - Part II, Fishing Information.

Staff, Tuna Forecasting Program
U.S. Bureau of Commercial Fisheries
Biological Laboratory, San Diego

SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN

MAY 1964

Acknowledgments

The following organizations and stations contributed data for the May 1964 charts:

U.S. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base, Seattle, Washington
U.S. Bureau of Commercial Fisheries Biological Laboratories, La Jolla, California; Honolulu, Hawaii and Seattle, Washington
U.S. Weather Bureau, San Diego, California
U.S. Naval Communication Station Balboa, Fort Amador, Canal Zone
U.S. Weather Bureau Port Meteorological Office, Cristobal, Canal Zone
California Department of Fish and Game R/V N.B. Scofield
Guadalupe Island, Coronado Island, Ensenada, Cedros Island and Almejas Bay by Pedro Mercado fo the Universidad Autonoma de Baja California, Ensenada, Mexico
Hopkins Marine Station, Pacific Grove, California by J. P. Balesteri
Inter-American Geodetic Survey by Rene Cortes at Salina Cruz, Mexico; David Ortega at Manzanillo, Mexico; T. Torres at Pt. Armuelles, Panama; R. H. Valencia at San Jose, Guatemala; V. E. Castillo at Tumaco, Colombia; G. Tapia at San Cristobal, Galapagos; S. Valenzuela at La Libertad, Ecuador; G. Villar at Talara, Peru; Juan Andia at San Juna, Peru
Inter-American Tropical Tuna Commission, La Jolla and Terminal Island, California
Kelco Company, San Diego, California
Lifeguard Headquarters, Newport Beach, California
Pacific Oceanographic Group, Nanaimo, British Columbia, by H. J. Hollister from observations by R. W. Collins at Quatsino Lightstation; J. L. Fraser at Cape St. James Light; B. Stuart at Amphitrite Point Light; R. A. Smith at Langara Island Light
Scripps Institution of Oceanography, La Jolla, California by Margaret Robinson and Hans Klein
Ships Jo Linda, Royal Pacific, Viking and West Point

Charts

Figure 1.--Mean sea surface temperatures (°F) derived from approximately 8000 observations. Squares show temperatures at weather-ship stations. Numerals on shore are temperatures at coastal and light-ship stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term charts of H.O. 225. Hatched areas are colder than mean.

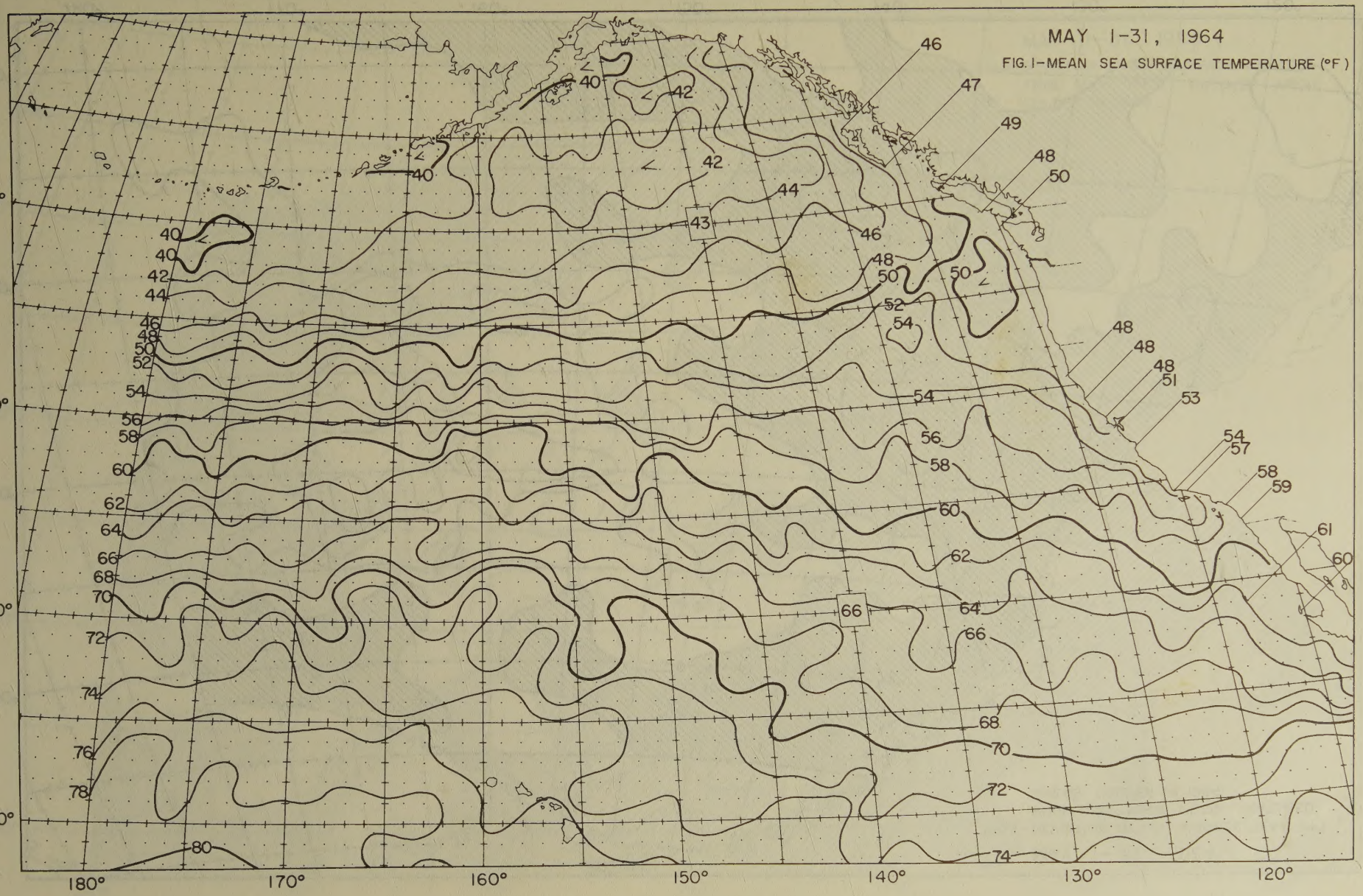
Figure 3.--Deviation of sea surface temperatures (°F) from those of May 1963. Hatched areas are colder than 1963.

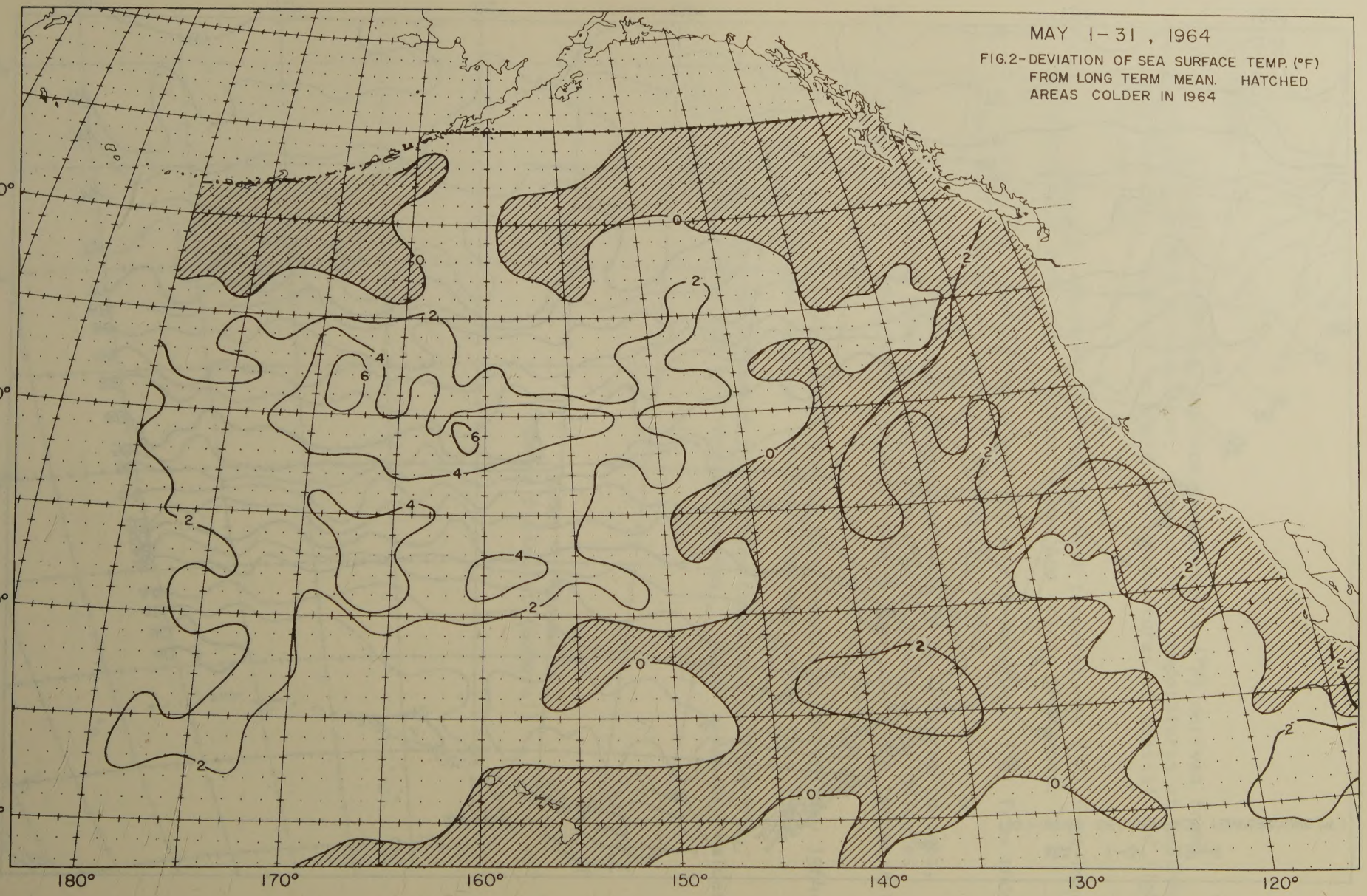
Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

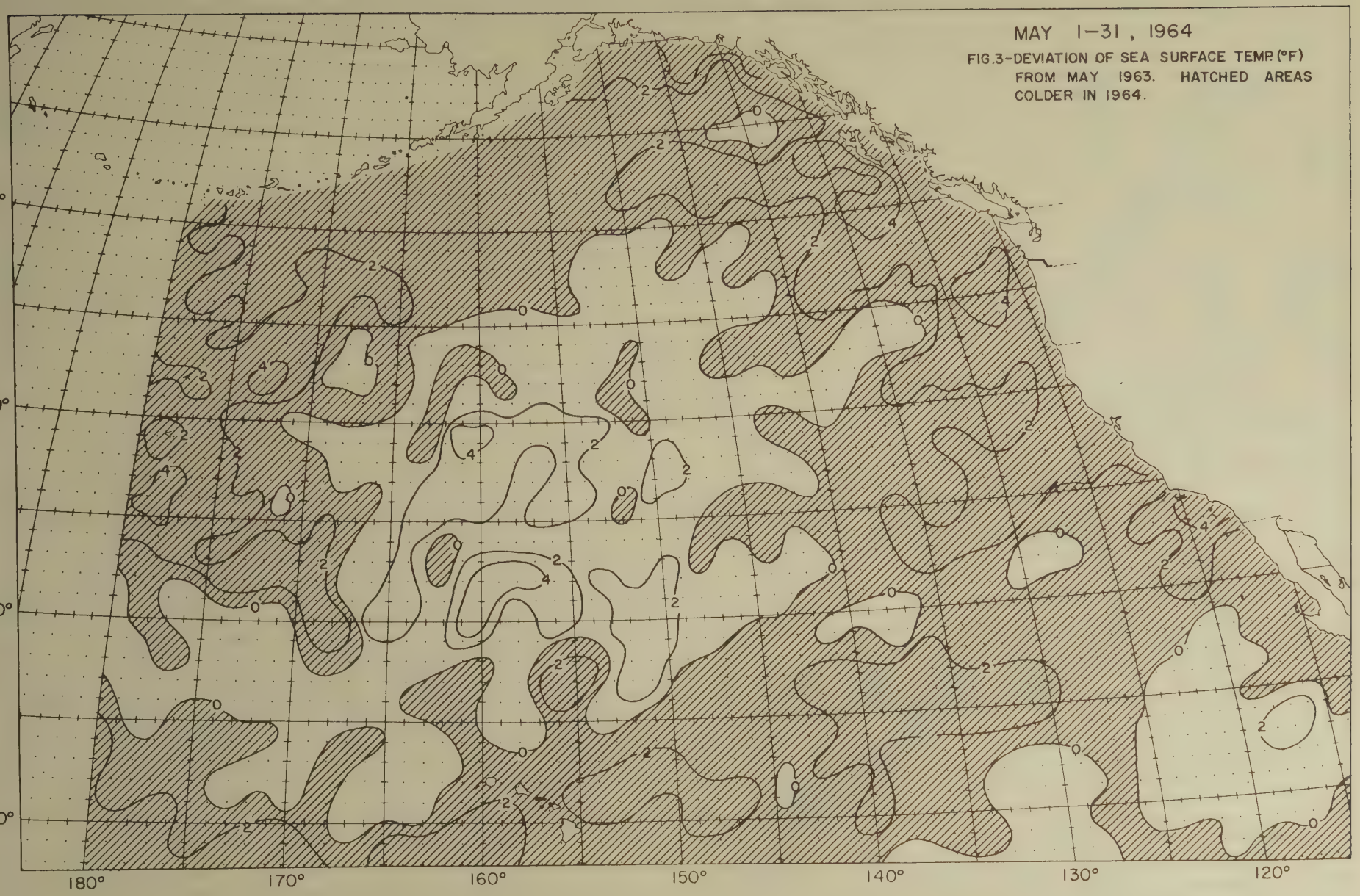
Figure 5.--Deviation of sea surface temperatures (°F) May 1964-May 1963 by 1-degree squares. Shaded areas are colder than 1963.

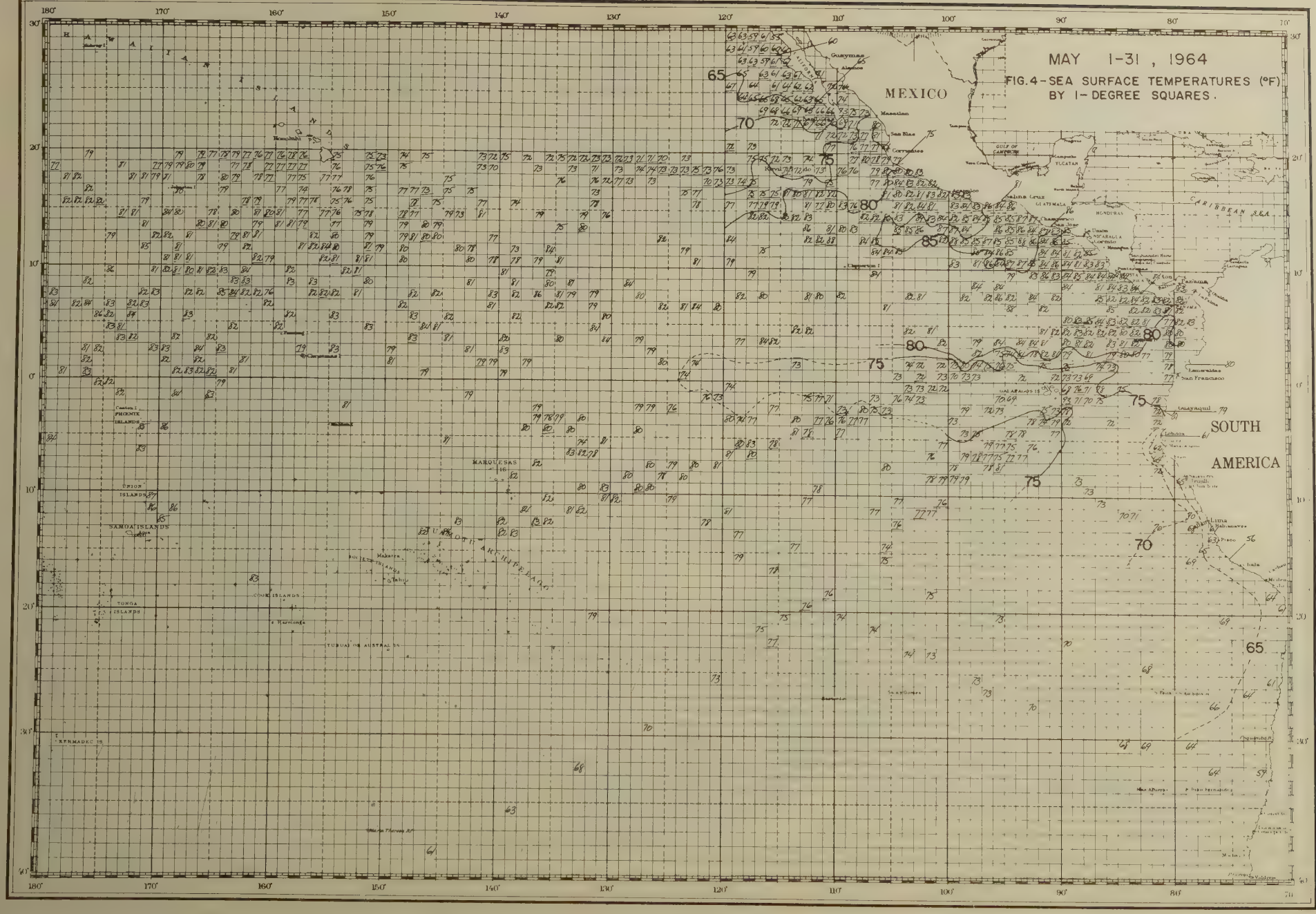
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder than 1963.

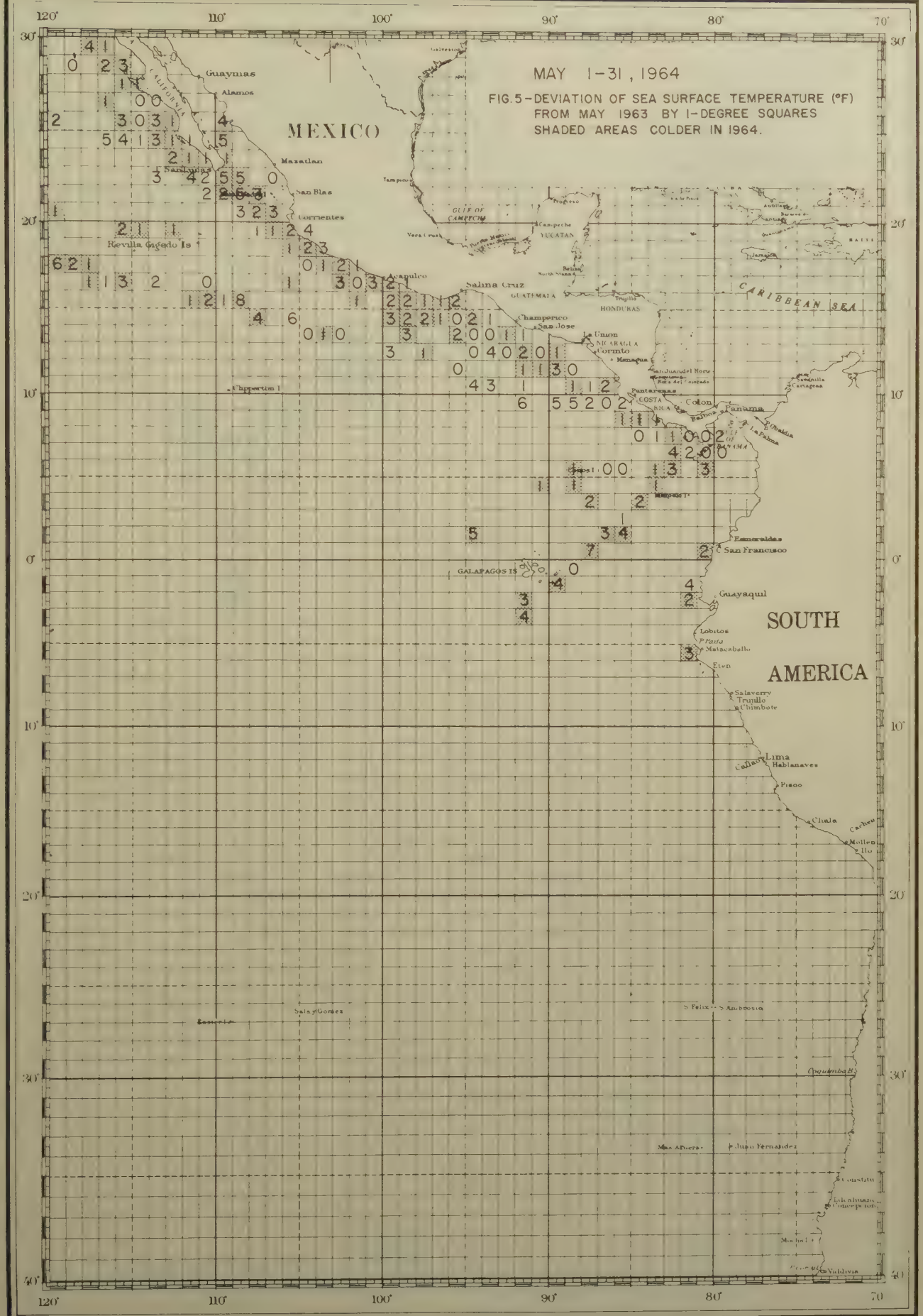
James A. Renner
Fishery Biologist (General)

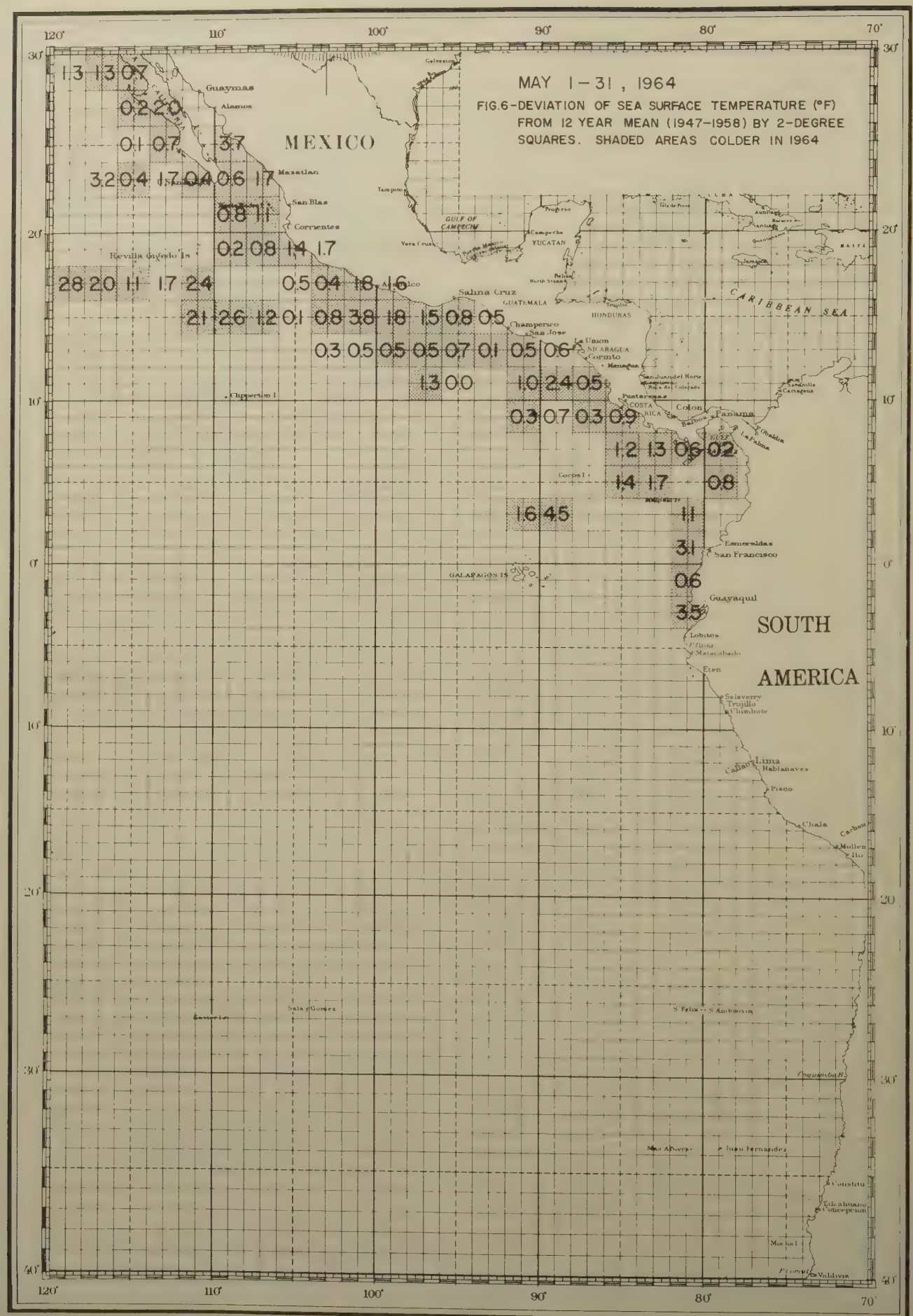

MAY 1-31, 1964
FIG. 1-MEAN SEA SURFACE TEMPERATURE (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
43
66

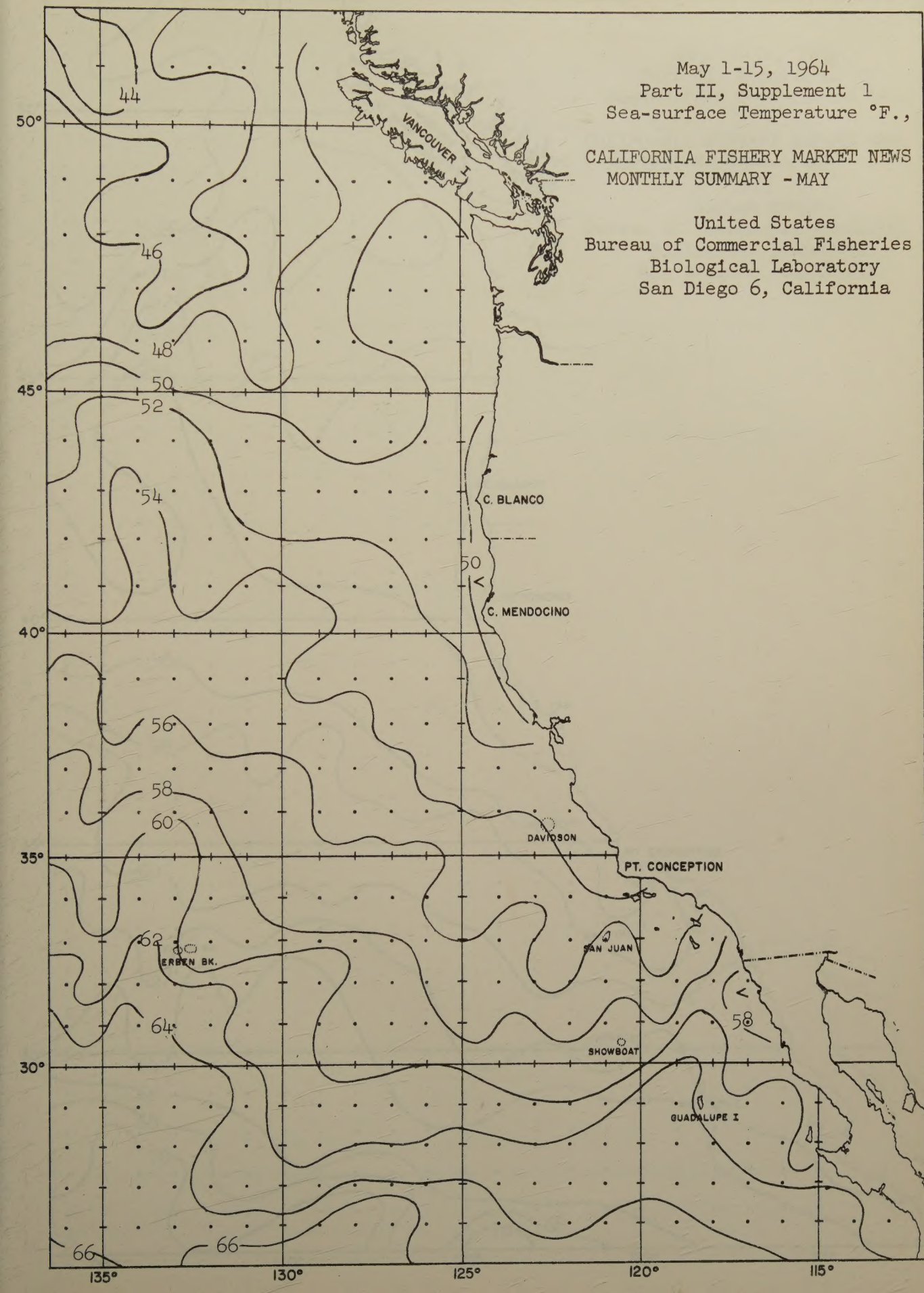

MAY 1-31, 1964
FIG. 2 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1964
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

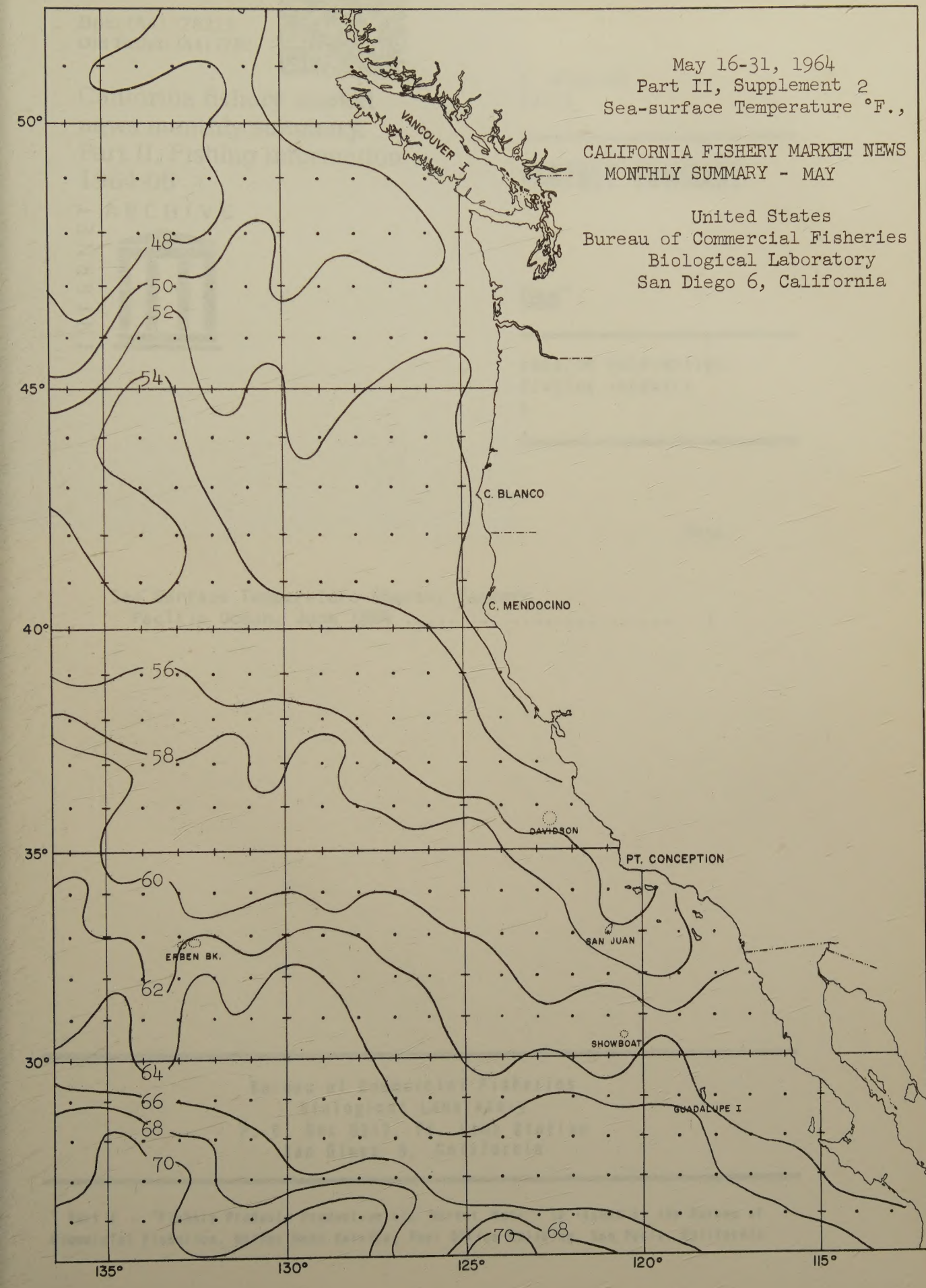

MAY 1–31, 1964
FIG.3-DEVIATION OF SEA SURFACE TEMP.(°F) FROM MAY 1963. HATCHED AREAS COLDER IN 1964.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


MAY 1-31, 1964
FIG. 4 - SEA SURFACE TEMPERATURES (°F) BY 1-DEGREE SQUARES.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF MEXICO
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
PANAMA
GALAPAGOS IS.
PHOENIX ISLANDS
UNION ISLANDS
SAMOA ISLANDS
MARQUESAS
TUAMOTU ARCHIPELAGO
SOCIETY ISLANDS
COOK ISLANDS
TONGA ISLANDS
KERMADEC IS.
Guaymas
Mazatlan
San Blas
Acapulco
Salina Cruz
Tampico
Veracruz
Panama
Guayaquil
Lima
Callao
Arica
Iquique
Antofagasta
Valparaiso
Tahiti
Rarotonga
Pago Pago
Apia
Nukualofa
Raoul I.
Curtis I.
Enderbury I.
Canton I.
Nassau I.
Jarvis I.
Howland I.
Baker I.
Christmas I.
Malden I.
Starbuck I.
Hull I.
Sydney I.
Fanning I.
Washington I.
Palmyra I.
Johnston I.
Wake I.
Midway Is.
Kingman Reef
Palmyra Is.
Johnston Is.
Wake Is


MAY 1-31, 1964
FIG. 5 - DEVIATION OF SEA SURFACE TEMPERATURE (°F) FROM MAY 1963 BY 1-DEGREE SQUARES SHADED AREAS COLDER IN 1964.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Acapulco
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Panteneas
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Huacho
Pisco
Chala
Arequipa
Mollendo
Ilo
Iquique
Valdivia
Progreso
Campeche
Yucatan
Belize
Tampico
Vera Cruz
Trujillo
Cartagena
Aruba
Curacao
Jamaica
Haiti
Cuba
Revilla Gigedo Is
Chipperton I
Sala y Gomez
Easter I
Juan Fernandez
Mas Afuera
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°


MAY 1 – 31 , 1964
FIG.6-DEVIATION OF SEA SURFACE TEMPERATURE (°F) FROM 12 YEAR MEAN (1947–1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1964
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GUATEMALA
HONDURAS
COSTA RICA
NICARAGUA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Salina Cruz
Champerico
San Jose
Chipperton I
Cocos I
Panama
Colon
Guayaquil
Lobitos
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Hablanaves
Pisco
Chala
Mollendo
Ilo
Arica
Valdivia
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°


May 1-15, 1964
Part II, Supplement 1
Sea-surface Temperature °F.,
CALIFORNIA FISHERY MARKET NEWS
MONTHLY SUMMARY - MAY
United States
Bureau of Commercial Fisheries
Biological Laboratory
San Diego 6, California
VANCOUVER I.
C. BLANCO
C. MENDOCINO
DAVIDSON
PT. CONCEPTION
SAN JUAN
SHOWBOAT
GUADALUPE I
ERBEN BK.
44
46
48
50
52
54
56
58
60
62
64
66
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°


May 16-31, 1964
Part II, Supplement 2
Sea-surface Temperature °F.,
CALIFORNIA FISHERY MARKET NEWS
MONTHLY SUMMARY - MAY
United States
Bureau of Commercial Fisheries
Biological Laboratory
San Diego 6, California
VANCOUVER I.
C. BLANCO
C. MENDOCINO
DAVIDSON
PT. CONCEPTION
SAN JUAN
EMBEN BK.
SHOWBOAT
GUADALUPE I
48
50
52
54
56
58
60
62
64
66
68
70
70
68
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°